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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/578,155	05/23/2000	Michael R. Krause	10991833-1	4285

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EXAMINER
REILLY, SEAN M

ART UNIT	PAPER NUMBER
2153	

DATE MAILED: 10/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

		Application No.	Applicant(s)
Office Action Summary		09/578,155	KRAUSE ET AL.
		Examiner	Art Unit	
		Sean Reilly	2153	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 June 2006*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-45* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Another Examiner has been assigned to this Application.

This Office action is in response to Applicant's amendment and request for

reconsideration filed on June 30, 2006. Claims 1-45 are presented for further examination. All

independent claims have been amended.

Response to Arguments

Applicant's arguments filed June 30, 2006 have been fully considered but they are not

persuasive. All of Applicant's arguments are identical to the arguments filed January 11, 2006

except for the arguments related to Applicant's new claim limitations. It is not clear why

Applicant amended the claims and still presented identical arguments. Applicant's previous

arguments were not persuasive and continue to not be persuasive. If Applicant disagrees with

the pervious Examiner's arguments (which mailed on March 30, 2006) in response to

Applicant's arguments filed January 11, 2006 then Applicant is encouraged to respond to those

arguments. This Examiner reiterates the arguments set forth by the previous Examiner and

directs Applicant to the final action mailed March 30, 2006 for review of those arguments.

With regard to Applicant's new claim limitations, Applicant asserts that the combined

Wilson and Shay system does not permit one AI (application instance) to one AI, one AI to many

AIs, and many AIs to one AI reliable communication. Examiner respectfully disagrees. As

previously addressed Wilson provides for reliable communication between two applications

(final action mailed March 30, 2006 – Response to Arguments section). Wilson also allows

numerous systems and the applications within those systems to communicate with each other in

anyone of a one to one, one to many, or many to one fashion, see inter alia instance figure 1D or

Col 8, line 32 – Col 9, line 23 or Col 10, line 48 – Col 11, line 33). For instance multiple

desktop applications may communicate with multiple SAN drives in anyone of a one to one, one

to many, or many to one fashion (see inter alia Col 10, line 48 – Col 11, line 33).

Further the datagram service implemented by Wilson is not implemented at an application level.

Rather each application on a given system passes data to be transmitted across the network to an

adapter card or resource (software or hardware). These adapter cards or resources are configured

to implement the actual communication of data across the network in accordance with Wilson's

datagram service for each system (see inter alia, Col 8, lines 17-45) and can be considered

analogous to layers 3 and/or 2 of the well-known TCP/IP stack insomuch as they all reside

between the application layer and the lowest layer that handles the physical transfer of bits and

facilitate the transfer of application data. Hence, in Wilson multiple applications on a source

system communicate freely with multiple applications on other destination systems through a

single adapter card or resource configured to implement Wilson's datagram service. Note the

adapter card or resource of Wilson contains Applicant's claimed source and destination SDR

resources. Thus, Wilson clearly disclosed communicating between applications using the source

SDR resources and the destinations SDR resources in an AI to AI, one AI to many AI, and many

AIs to one AI reliable communication.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-45 are rejected under 103(a) as being unpatentable over Wilson et al. US patent 6,738,821 and further in view of William Shay "Understanding Data Communications and Networks".

As per claim 1, Wilson teaches a source and destination resource comprising:

a source multiplexing units of work into a serial unit of work [serialized and encapsulated - see col.17 lines 30-37] in a defined order [sequence number - see col.17 lines 45-56] and transmitting the serial unit of work over a communication fabric; and

a destination receiving the serial unit of work, multiplexing the serial unit of work and providing a NAK for a unit of work received ahead of its defined order [when a sequence number gap is detected - see col.17 line 68 to col.18 line 10];

wherein the source and destination together implement a reliable datagram service (col.17 lines 49-55 "data stream" service)[1] which permits one AI to one AI, one AI to many AIs, and many AIs to one AI reliable communication [numerous systems and the applications within those systems can communicate with each other, for instance multiple desktop applications on multiple computers store data on a given storage drive or a desktop application communicates with

multiple storage drives, see inter alia figure 1D or Col 8, line 32 – Col 9, line 23 or Col 10, line

48 – Col 11, line 33].

Wilson does not specifically disclose a source buffer holding unacknowledged packet and

not yet transmitted packets. However this element is inherent in the teaching of Wilson. However

this feature is well known in the art as part of a sliding window protocol. Shay described well-

known sliding window protocol similar to that described by Wilson. Shay teaches providing a

buffer [fig.5.7 p.261] holding packets not yet acknowledged [fig.5.7 frames between W and w+i-1]

and packets not yet transmitted [fig.5.7 frames from w+i-1 onward]. Shay teaches maintaining not

yet acknowledged packets in the buffers so that they can be resend [see page 264 3rd paragraph].

Wilson specifically disclose using sliding window [col.18 lines 17-18]. Hence, Wilson

inherently has a buffer function as claimed. Furthermore, it would have been obvious for one of

ordinary skill in the art to have hold not yet acknowledged packets and not yet transmitted packets

in the source buffer because it would have enabled efficient retransmission the packets.

As per claim 2, Wilson does not specifically disclose providing ACK for each unit of work

(packet) successfully received. Providing ACK for every packet received is simpler to program and

it would have enabled the sender to promptly know which packet was successfully received.

However, providing ACK for every packet would generate more traffic than providing an ACK for

a set of packets. Hence, providing ACK for every packet received or for a set of packets is matter of

design choice and would have been obvious variation from the teaching of Wilson as a whole.

As per claim 3, Wilson teaches providing ACK for a set unit of work which were

successfully received col.17 lines 57-62].

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[1] As explained in the prior office action, Wilson's "data stream" service is
equivalent to applicant's "reliable datagram" service.

As per claim 4, Wilson teaches the source responding to the NAK to retransmit all unacknowledged units of work col.18 line 12-17].

As per claim 5, Wilson does not specifically disclose selective retransmitting unacknowledged units of work. It is apparent that Wilson is implement a Go-back-N sliding protocol [see Wilson col. 18 lines 1-17]. Shay discloses using Selective Repeat protocol is more efficient than Go-Back-N protocol in network that is not reliable [see Shay p.270 last paragraph]. Hence using selective retransmission would have been obvious over the teaching of Wilson. It would have been obvious for one of ordinary skill in the art to use selectively retransmission of unacknowledged packets because it would have reduced bandwidth usage.

As per claim 6, Wilson teaches including protocol header col.17 lines 3844, 50-56].

As per claim 7, Wilson teaches including sequence number field col.17 lines 52-56].

As per claim 8, Wilson can detect when there a gap in the sequence, hence it is inherent that Wilson system known the expected next sequence number in order to detect the gap.

As per claim 9, the limitation recited is an inherent characteristic of the sequence number. It is an inherent characteristic of the sequence number that a number received that is smaller than a currently expected number is from a duplicate transmission.

As per claims 10 and 11, Wilson does not specifically disclose silently drop or sending ACK for duplicate unit of work (packet). Silently drop the packet would reduce network bandwidth usage. However, sending the ACK response would ensure that the sender receive a positive response to each packet that was transmitted. Hence, Silently drop the duplicate packet or responding with an ACK would have been a matter of design choice because they achieve essentially the same result.

As per claim 12, Wilson does not specifically disclose sending a NAK if a packet is determined to be invalid. However, it would have been obvious to one of ordinary skill in the art to provide a NAK to the sender when the packet is corrupted or invalid so that the sender know to retransmit that packet.

As per claim 13, the recited limitation is an inherent characteristic of the sequence number. It is inherent that a packet containing sequence number larger than the expected next sequence number is a packet received ahead of its defined order.

As per claims 14-15, Wilson teaches the NAK indicates to the sender to send packets with sequence number equal to or greater than the next expected sequence number col.18 lines 29]. Wilson does not teach providing the expected next sequence number in the NAK response. Wilson teaches to put the sequence number of the last successfully received sequence number in the NAK response [col. 18 line 5]. Providing the expected sequence number or the last successfully received sequence number are clearly obvious variation of each other because both would achieved essentially the same result - that is notifying the sender the starting sequence number to begin retransmission. With the last successfully received number, the sender would retransmit starting with the next sequence number. With the expected sequence number, the sender would retransmit starting with the expected sequence number. Both methods would achieve essentially the same result in essentially the same way.

As per claim 16, Wilson teaches dropping the unit of work that is received ahead of its defined order col.18 lines 1012].

As per claim 17, Wilson does not teach temporarily keeping the unit of work that was received ahead of its order after verifying that the unit is valid. It would have been obvious for one

of ordinary skill in the art to keep valid packet even through it was received ahead of its order

because it would have reduced bandwidth usage by enabling the system to implement a

retransmission scheme of only the missing packets instead of retransmitting all packets starting from

the missing packet.

As per claim 18, it is rejected under similar rationale as for claim 1 above.

As per claim 19, it is rejected under similar rationale as for claims 6-8 above.

As per claims 20-21, they are rejected under similar rationale as for claims 14-15 above.

As per claim 22, it is rejected under similar rationale as for claim 16 above.

As per claims 23-24, they are rejected under similar rationale as for claim 17 above.

As per claims 25, it is inherent that a source device can also function as a destination device

and vice versa depending upon the direction of the data transfer.

As per claims 26-45, they are method claims corresponding to the system claims 1-25.

Hence they are rejected under similar rationales as for claims above 1-25. Regarding claim 44, it is

an inherent characteristic of any transmission system that a sender produces a unit of work (data to

be transmit) and the destination consumes the unit of work (receiving the data).

Conclusion

The prior art made of record, in PTO-892 form, and not relied upon is considered

pertinent to applicant's disclosure.
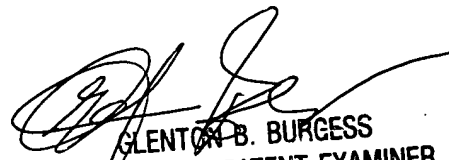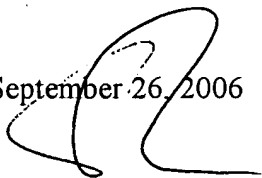
This office action is made **NON-FINAL.**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean Reilly whose telephone number is 571-272-4228. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glen Burgess can be reached on 571-272-3949. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

September 26, 2006

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